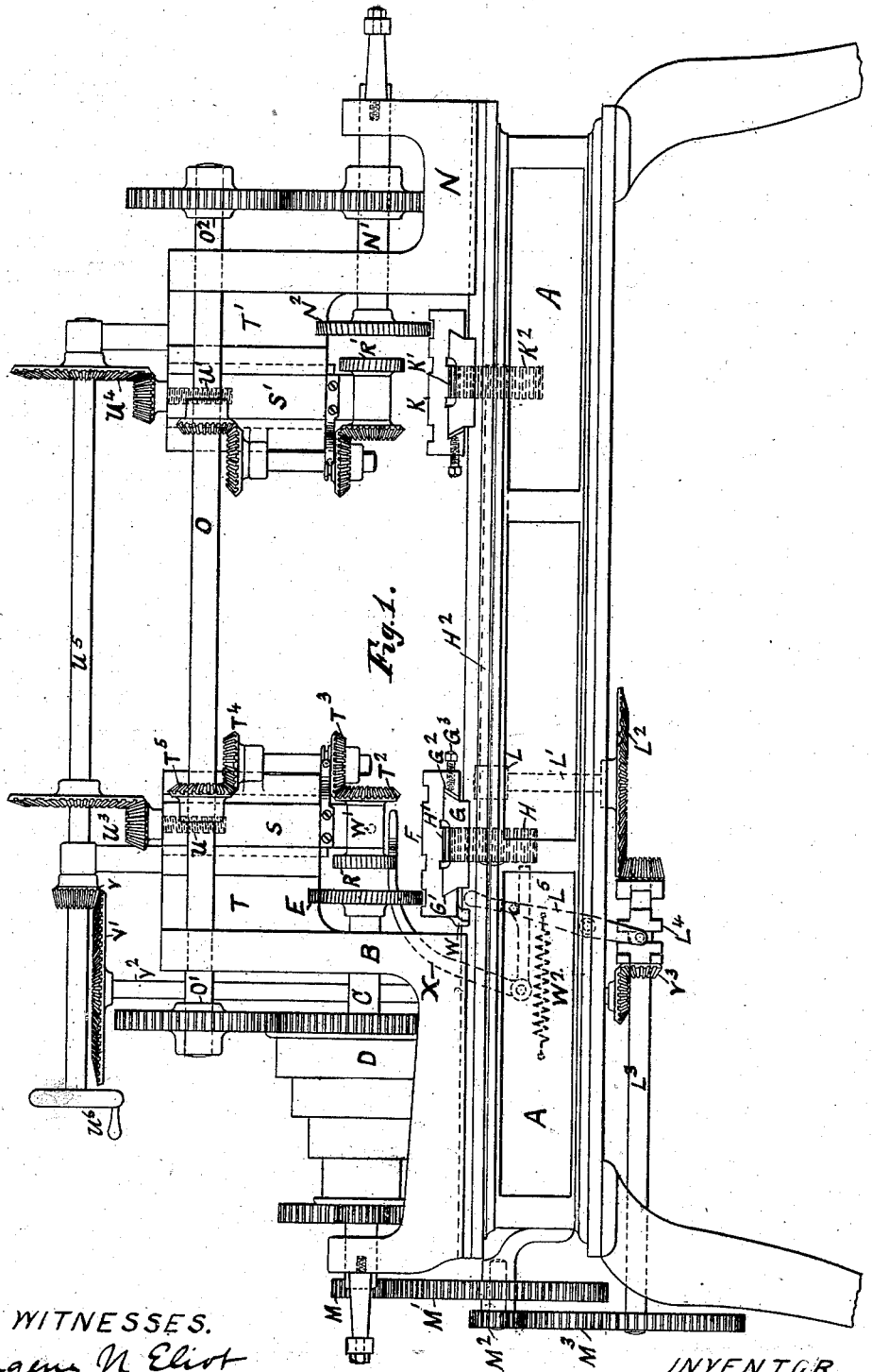
(No Model.) 2 Sheets—Sheet 1.

C. B. COTTRELL.

MACHINE FOR DRESSING PRINTERS' CHASES.

No. 252,290. Patented Jan. 10, 1882.



WITNESSES.
Eugene N Eliot
Fred Hays

INVENTOR.
Calvert B. Cottrell
by his atty
Boyd Eliot

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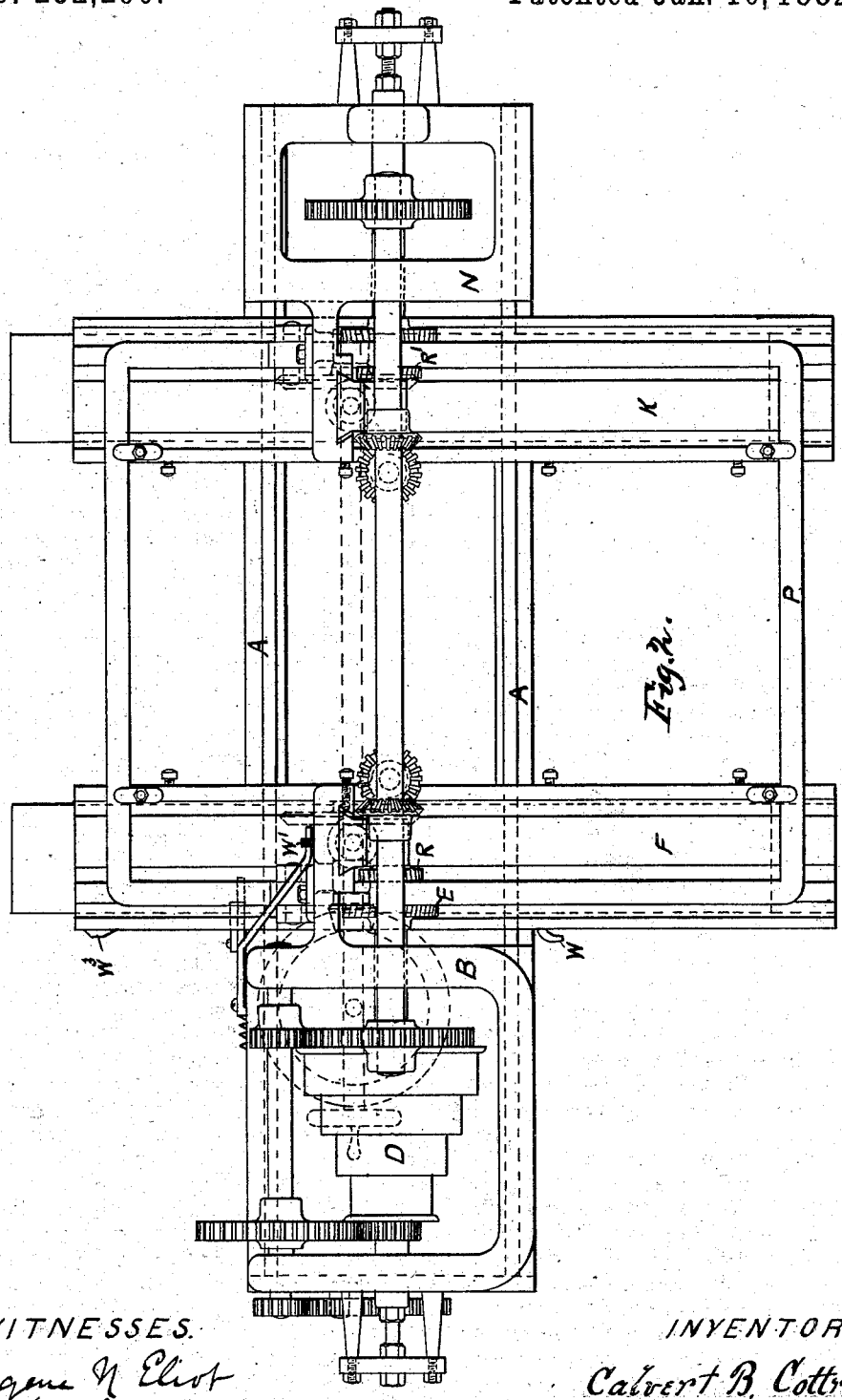

Fig. 2.

WITNESSES.
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UNITED STATES PATENT OFFICE.

CALVERT B. COTTRELL, OF WESTERLY, RHODE ISLAND.

MACHINE FOR DRESSING PRINTERS' CHASES.

SPECIFICATION forming part of Letters Patent No. 252,290, dated January 10, 1882.

Application filed April 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, CALVERT B. COTTRELL, of Westerly, Washington county, State of Rhode Island, have invented new and useful Improvements in a Machine for Dressing Printers' Chases, of which the following is a specification.

This invention has for its object the dressing of the outer and inner edges of the metal frames for holding forms of type, and known as "printers' chases;" and the invention consists, first, in combining a pair of cutters or milling-tools with a supporting and moving bed and suitable operating mechanism in such a manner that the outer and inner edges of one side or end of the chase-frame and two adjacent inner corners or angles thereof will be completely dressed or finished, ready for use, and automatically, as will hereinafter appear; and, second, the invention also consists in combining a second pair of cutters with a supporting and moving bed working simultaneously with the first pair of cutters and their supporting-bed in such a manner that an opposite side or end of the chase-frame and two of its adjacent inner corners will be completely finished simultaneously with the first side, as will hereinafter appear.

The invention further consists in combining two supporting-beds upon a main frame for supporting the chase-frames at their opposite sides, and having one of the said beds adjustable relative to the other to adapt them to the sizes of the work, as will hereinafter appear.

In the drawings, Figure 1, Sheet 1, is a side elevation of the machine. Fig. 2, Sheet 2, is a plan of the same.

At A is a frame similar in shape to a lathe frame or bed, mounted on feet, as shown, and which supports all the rest of the mechanism. Upon one end of said frame, as at B, is a head-stock supporting a shaft, C, provided with cone-pulleys D, for receiving motion from a belt to operate all the other parts of the machine. Upon the inner end of the said shaft C one of the cutters or milling-tools is mounted, as at E, and it is simply a plain disk, with the cutting-teeth on the circumference made of any suitable or of one of the many well-known forms for such tools. Underneath said cutter is a bed or plate, as at F, for supporting one side or end of the chase-frame, and which ought, therefore, to be as long as said frame, but may be quite narrow, as represented, and this bed is mounted to work transversely or at a right angle to the axis of the cutter at E, and consequently is at a right angle to the main frame A, and it is arranged to slide on a guide at G, which is fastened upon the main frame, and has V-shaped edges at G′ to engage in corresponding grooves in the under side of the bed, one of which is provided with a gib at G^2 and set-screws at G^3, as in the well-known form of arranging sliding or moving beds on various machines. Said bed is arranged to move to and fro by a spur-pinion at H gearing into a rack on the under side of the bed, as at H′, and the pinion is on a shaft at H^2, (shown in dotted lines in Fig. 1,) and which is located under the bed and extends toward the opposite end of the frame to operate another bed of the same construction at K, which is a duplicate of the first, and is provided with a rack on its under side at K′ and a pinion at K^2 on the said shaft H^2, as shown. Said shaft is rotated by a worm-gear at L on a vertical shaft at L′, upon the lower end of which is a bevel-wheel at L^2, that receives motion from a pinion on the end of a shaft at L^3, upon which there is a clutch at L^4, that rotates with the shaft by a spline or feather, and is operated by a lever at L^5, which will be hereinafter explained.

The shaft at L^3 receives its motion from the main shaft at C through intermediate gear-wheels at M, M′, M^2, and M^3, in the same manner as the gear-wheels on an engine-lathe, and therefore need not be any further explained, as it is very evident that by such an arrangement the two beds will be moved to and fro by such a mechanism when it is set in motion.

A tail-stock, as at N, somewhat like a tail-stock on a lathe, is mounted on the frame, and it supports a cutter-shaft, as at N′, in suitable bearings; and upon its inner end is a cutter, as at N^2, similar to the one at E, and said cutter or milling-tool receives its motion from a shaft at O, which is mounted in bearings in the upper portions of the head and tail stocks, and which is provided with spur-wheels at O′ and O^2, gearing into wheels on the shafts C and N′, and thus the shaft in the tail-stock is driven

from the main shaft at C in the head-stock. These cutters, as thus described, are for dressing the outside or outer edges of the frames, and therefore the cutters and the tail-stock at that end of the machine are both capable of being moved toward and from the head-stock on the main frame A, in the same manner as the tool-rest and tail-stock of a lathe, to adapt them to the sizes of the forms. Consequently, if a chase-frame or a number of them of the same size be clamped or fastened upon the beds, as represented at P in Fig. 2, and the machine be set in motion to move the beds and rotate the cutters, the outer edges or sides will be dressed by the said cutters or milling-tools. These supporting-beds, as shown, are quite narrow as compared with their length, being merely wide enough to support the sides of the chase-frames; but this gives the advantage of adjustment relatively to each other, as one of them may be moved on the main frame A toward the other, like a slide-rest on a lathe.

It will also be found most advantageous to have a false frame of the proper size to hold the chase-frames and fasten it upon the beds, so that the cutters can work into it or past it without cutting into the beds; but to dress the inner edges of the frames, and also their corners, supplementary cutters, as at R and R′, are provided to co-operate with those already described. These supplementary cutters are mounted on shafts or axes in the lower ends of vertical guides, as at S and S′, that work up and down in V-shaped bearings in brackets, as at T and T′, that are cast upon the head and tail stocks, as shown, and they are provided with gibs and set-screws to make them work accurately; and said cutters are rotated by miter-wheels, as at T^2, T^3, T^4, and T^5, which engage with the same shaft, O, that drives the shaft N′ in the tail-stock. These guides S and S′ are operated by vertical screws in the upper ends of the guides, as at U and U′, and upon the upper ends of the screws are bevel-pinions, that gear into wheels at U^3 and U^4 on a shaft, U^5, above the machine, which is provided at one end with a crank and hand wheel, as at U^6, so that the said cutters may be raised and lowered by hand; but said shaft is also provided with a bevel-pinion at V, to engage with a wheel at V′ on a vertical shaft at V^2, on the lower end of which is a pinion, that engages with another pinion, V^3, on the shaft L^3, and which may receive motion from the clutch at L^4 when the lever at L^5 is moved to connect them. This clutch lever may be operated in various ways—as, for example, a shipping-guide may be fastened upon the edge of the bed F, as at W, so that after the bed has traveled far enough to allow the supplementary cutters to descend into the interior of the frames to dress the inner corners said guide W will draw the top of the lever over toward the bed and move the clutch into contact with the gearing that operates the screws, as described, to lower the said cutters toward the frames, and after they have descended sufficiently far to dress the corners, which will be to the extent of carrying the axes of the cutters below the lowest frame, or at least one-half of the cutters below the surface of the beds, then another stop on the guide at W′, next to the head-stock, will trip the bell-crank lever X, and thereby release the clutch-lever L^5, when the spring at W^2 will, as the guide descends, throw it over to start the movement of the beds endwise, and thus dress the inner and outer edges of the frames at the same time; and when the inner cutters have reached the opposite corners, then another shipping device, as at W^3, throws the clutch-lever over, and by reversing the feed-gear on the main shaft at C the screws will be reversed and the supplementary cutters will rise to dress out the corners on that side of the frames after the beds are again started to permit the outside cutters to finish the remaining portions of the outsides or edges of the frames. By such a combination of mechanism two opposite sides and the adjacent corners to one side of one or more chases may be dressed simultaneously and automatically; but it is evident that the bed and the tail-stock cutter, and also the supplementary cutter at that end of the machine, with their operating mechanisms, may be dispensed with, and a single pair of cutters, as shown at the head-stock, may be used to dress a single side or end of a chase by substantially the same operating devices as hereinbefore described, and as represented in the drawings; but in so doing a proportionally less amount of work will be accomplished, and, besides, a greater number of changes or shiftings of the chase upon the beds will be required, and hence a greater danger of inaccurate work; but with care a single pair of cutters and a single bed perform excellent work. Consequently

I claim—

1. In a machine for dressing printers' chases, the combination of a pair of cutters or milling-tools, one of which is arranged to move up and down, with a supporting and reciprocating bed and suitably-operating mechanism, whereby the outer and inner edges of a chase-frame and the adjacent inner corners may be completely finished, as hereinbefore set forth.

2. In a machine for dressing printers' chases, the combination of two pairs of cutters, one of each pair of which is arranged to move up and down, and their supporting mechanisms, whereby two opposite sides of a chase-frame and their adjacent inner corners may be completely dressed or finished, as hereinbefore set forth.

3. The combination of two supporting and moving beds, arranged transversely to the main frame and adapted to be adjusted relatively to each other for receiving the various sizes of work, as hereinbefore set forth.

4. The combination of the double clutch and

its lever with the shifting devices on the supporting-bed and on the guide of the supplementary cutter, to trip said clutch to and fro for varying the movements of the bed and the supplementary cutter or cutters, as hereinbefore set forth.

In witness whereof I have hereunto set my hand and affixed my seal in the presence of two subscribing witnesses.

CALVERT B. COTTRELL. [L. S.]

Witnesses:
EUGENE N. ELIOT,
E. H. COTTRELL.